

INFORMATION FOR TECHNICAL REVIEW – PLASTIC PARTS COATING PROCESS

Guidance for Permit Applicants

The following information will be used for the technical review of a Permit to Install application for a **plastic parts coating¹ process**. This information is in addition to the general requirements outlined in the AQD document “Information for an Administratively Complete Permit to Install Application”, Part 2 - Additional Supporting Information, Items A through F. All the information may not be needed for each application. Also, this document may not be all inclusive. Additional information beyond that identified may be necessary to complete the technical review of any individual application. In the event a determination is made that new additional information is needed for a technical review, this document will be updated.

All referenced guidance documents are available on the Air Quality Division (AQD) website at [AQD Permits to Install / New Source Review](#) or you may contact the Permit Section at 517-284-6795.

Plastic parts coating is a broad general category intended to include the coating of plastic parts regulated under Rule 632 of the Michigan Air Pollution Control Rules. The types of parts include automobile, truck and business machine plastic parts.

Rule 632 does not apply to certain specific categories. Subrules (16) and (17) list the processes which are not included in the plastic parts coating category. These categories may be covered by another specific state or federal regulation. For example, if the coating line is subject to Rule 610 or Rule 621, the line is exempt from Rule 632. Subrule (5) specifies if a part consists of both metallic and plastic surfaces and is exempt from the limits of Rule 621; the part is subject to the requirements of Rule 632. Refer to “Additional Technical Information for a Miscellaneous Metal Coating Process”.

The Michigan Air Pollution Control Rules are available on the AQD website at [AQD website](#). Click on ‘State Air Laws and Rules’.

NOTE: Coating lines emitting up to 10 tons per year of volatile organic compounds (VOC) may be eligible for a general permit. The use of a general permit provides a streamlined permitting alternative to the normal permitting procedure for processes that meet specified applicability criteria. Information for the general permit is available on the Internet at [General Permits to Install](#).

A. Process Description

1. Describe the coating process, including the following:
 - a) Make, model, and dimensions of each coating booth.
 - b) The type of overspray control on each booth (dry filter, waterwash, etc.).
 - c) Coating method (manual or automatic, overhead conveyORIZED, automatic conveyor belt or table).
 - d) Application equipment (dip tank, spray guns, flow coater).
 - e) A description of any ovens (dry off, bake and/or curing), the method of heating and the amount of any fuel to be used in one hour and one year.
 - f) Type of coating/finishing operations (stains, washcoats, sealers, topcoats, basecoats, enamels, etc.)
 - g) Face velocity for each coating spray booth in feet per minute.
 - h) Exhaust rate through all related stacks (booths, ovens, flash-off and drying tunnels/areas), in cubic feet per minute.
2. Described the parts to be coated.
3. Describe each coating, reducer and clean-up solvent as received, including the following information:
 - a) The density in pounds per gallon, the volatile organic compound (VOC) content, and the percent by volume of solids in the material before it is reduced.
 - b) A listing of each component² in each coating, reducer and clean-up solvent. In most cases, Safety Data Sheets are sufficient. This information will be used to determine compliance with Rule 225 which requires an analysis of Toxic Air Contaminant (TAC) emissions and their impacts. TAC emissions may result from individual components in the coating or from by-products created during the curing process. Therefore,

¹ “Coating” includes, but is not limited to, paint, lacquer, varnish, ink, shellac, enamel, sealer, glue, adhesive, and other materials applied to various surfaces.

² “Component” includes organic solvents, water, pigments, resins, catalysts, curing agents, accelerators, and other materials.

multiple information sources and a chemical reaction analysis may be necessary to estimate emissions of TACs. For additional and more detailed documentation you may include, or in the future may be asked to include, additional sources of data such as Environmental Data Sheets, Environmental Constants Sheets or formulation data.

- c) For each specific component provide:
 - i. The specific chemical name, such as xylene, methanol or lead chromate, and the respective Chemical Abstract Service (CAS) number. If after a rigorous effort has been made, the component does not appear to have a CAS number, identify the component by a generic or common name (i.e., aromatic hydrocarbon, alcohol, glycol ether, chromium pigment) and provide all available information on the chemical family, properties, characteristics, composition, etc. Lack of adequate chemical identification may delay the analysis of the TAC emissions.
 - ii. Provide the percent of the component in the coating, reducer or clean-up solvent by weight.
- 4. Provide the coating and reducer mixing ratio, by volume (i.e., one part reducer is added to two parts coating).
- 5. Provide the normal and maximum amounts of coating and reducer mixture to be applied in one hour and one year.

B. Regulatory Discussion

The following state air pollution control regulations may be applicable. Please review these regulations carefully to determine if they apply to your process and summarize the results in the application. The Air Pollution Control Rules may be viewed from the [AQD website](#). Click on 'State Air Laws and Rules'.

1. State of Michigan, Department of Environment, Great Lakes, and Energy, Act 451 of 1994, Natural Resources and Environmental Protection Act, Part 55 Air Pollution Control and the following promulgated rules:
 - a) Rules 215 and 216 apply to an existing facility which has a current Renewable Operating Permit (ROP). A Permit to Install issued for the installation of new equipment or modifications to existing equipment is incorporated into an ROP pursuant to Rules 215 and 216.
 - b) Rules 1901 - 1908 applies to a major source and/or a major modification at a source which is located in a nonattainment area. A nonattainment area is one where the National Ambient Air Quality Standards (NAAQS) are not being met. These rules require compliance with the lowest achievable emission rate (LAER) and an emission reduction (offset) for each nonattainment air contaminant emitted in significant quantities as defined by Rule 119(e). However, a source may choose to "net out" of the requirements of these rules. For additional detailed information regarding "netting", refer to Chapter 5 of the document entitled "PSD Workbook: A Practical Guide to Michigan's Prevention of Significant Deterioration Regulations", May 2014. This guide is referred to as the AQD's PSD Workbook and can be found on the [Permits to Install \(PTI\) / New Source Review \(NSR\)](#) webpage. Click on 'Application Form Instructions & Guidance Documents'. Although the guidance document is regarding Michigan's PSD regulations, the netting analysis performed for nonattainment NSR is the same as that performed for PSD.
 - c) Rules 1801 – 1823 apply to a major source and/or a major modification at a source which is located in an attainment area. An attainment area is one where the NAAQS are being met. These rules require compliance with Best Available Control Technology (BACT) and a demonstration that the proposed emissions will not contribute to the deterioration of air quality and will not violate any NAAQS or PSD increment. Refer to the [AQD's PSD Workbook](#) for additional detailed information. However, a source may choose to "net out" of the requirements of the PSD rules. For additional detailed information regarding "netting", refer to Chapter 5 of the [AQD's PSD Workbook](#) for additional detailed information.
 - d) If the process or equipment was installed or modified after April 17, 1992, Rules 224 – 230 apply. Rule 224 requires the application of Best Available Control Technology for toxics (T-BACT) for all non-VOC toxic air contaminants (TACs). T-BACT does not apply to emissions of VOCs. Rule 225 limits the emission impacts of TACs and requires a demonstration that the proposed emission of each TAC complies with a health-based screening level. Compliance can be demonstrated using any of three methods described in Rule 227(1) including the use of computerized dispersion modeling. Refer to "Guidelines for Conducting a Rule 224 T-BACT Analysis," "TACs-Demonstrating Compliance with Rule 225," and "Dispersion Modeling Guidance" for additional detailed information.

- e) If the process or equipment was installed or modified after August 1, 1979, Rule 702 applies. This rule requires Best Available Control Technology (BACT) for new sources of VOCs. Refer to “Instructions for Conducting a BACT Analysis” for additional detailed information. Rule 702(d) specifies that an emission limit for any new source of VOC emissions shall not exceed the maximum allowable emission rate specified in Part 6 of the rules that would otherwise apply if the source was an existing source. Rule 632 would be the applicable rule for an existing automobile, truck, or business machine plastic part coating process. “Existing source” and “new source” are defined in Rule 601 and Rule 701 respectively.
 - f) Rule 901 prohibits emissions of an air contaminant in quantities that cause either a) injurious effects to human health or safety, animal life, plant life of significant economic value, or property; or b) unreasonable interference with the comfortable enjoyment of life and property.
2. The PSD increments (40 CFR 52.21 (c)) and the NAAQS (40 CFR 52.21(d)) apply to all sources throughout the United States, regardless of size. Compliance with these air quality standards can be demonstrated using computerized dispersion modeling. An applicant for a PSD permit is required to submit PSD increment modeling for PM₁₀, PM_{2.5}, SO₂ and NO_x, and NAAQS modeling for PM₁₀, PM_{2.5}, SO₂, NO_x, CO, Ozone, and Lead as part of the application. Modeling for sources not subject to PSD may be done by the AQD. Refer to “Guidelines for Dispersion Modeling” for additional detailed information.
 3. Federal Standards of Performance for New Stationary Sources (NSPS), 40 CFR Part 60, Subpart TTT, Surface Coating of Plastic Parts for Business Machines. These federal regulations should be consulted carefully to determine applicability to your process
 4. National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63, Subpart PPPP, Surface Coating of Plastic Parts and Products, may apply to certain plastic parts coating processes. This regulation applies to four plastic parts coating subcategories: general use, thermoplastic olefin, automotive lamps and assembled on-road vehicles. The general use subcategory includes all surface coating operations in the plastic parts and products source category that are not included in the other four subcategories. This includes operations that coat a wide variety of substrates, surfaces, and types of plastic parts, as well as more specialized coating scenarios. The regulation allows the subject source the option of using low HAP-emitting coatings, utilizing add-on controls, or a combination of both to achieve compliance. This regulation is available on the United States Environmental Protection Agency’s (USEPA) website for NESHAPs at this link: [USEPA NESHAP website](#). The NESHAP for Surface Coating of Plastic Parts and Products can be found at this link: [Plastic Parts Surface Coating NESHAP](#), and should be consulted carefully to determine applicability to your process.
 5. Section 112(g) regulations of the federal Clean Air Act (CAA) require any constructed or reconstructed major source of Hazardous Air Pollutants (HAPs) be equipped with Maximum Achievable Control Technology (MACT) for individual and total HAPs greater than 10 and 25 tons per year, respectively, if a specific MACT does not apply. Refer to “Guidelines for Conducting a 112(g) Analysis” and Policy and Procedure AQD-015 [Procedure for Processing PTI Applications Subject to Federal Clean Air Act Section 112\(g\)](#) for additional detailed information.

C. Control Technology Analysis

1. Rule 702 BACT applies to all sources of VOCs proposed to be installed within the State of Michigan. A Rule 702 BACT analysis is very similar to a PSD top-down BACT analysis. For those sources completing a PSD top-down BACT analysis for VOCs, a Rule 702 BACT analysis is not required. Michigan’s air pollution control rules also define BACT as an emission limit. Rule 702 BACT should be applied on a flexible grouping of equipment – subdivisions of emission units and/or groupings of emission units – if it is logical to do so. Logical means that the principles on which the groupings (or subdivisions) are made are consistent with federal guidance and sound engineering practices. Refer to “Instructions for Conducting a BACT Analysis” for additional detailed information.
2. Best Available Control Technology for Toxics (T-BACT) means the maximum degree of emission reduction which the Department determines is reasonably achievable for each process that emits toxic air contaminants (TACs) considering energy, environmental and economic impacts, and other costs. T-BACT does not apply to VOCs. The analysis must be specific to the process and the TACs subject to a T-BACT review. T-BACT limits can be expressed as an emission limit, control equipment requirements, and/or work practice standards. Refer to “Guidelines for Conducting a Rule 224 T-BACT Analysis” for additional detailed information.

3. Lowest achievable emission rate (LAER) applies to a major source and/or a major modification at a source located in a nonattainment area. Please see the [Attainment Status Map](#) on the [AQD website](#) for the current nonattainment status in Michigan. LAER is defined as the lowest emission limitation contained in any State Implementation Plan (SIP) or the lowest emission limitation achieved in practice. Such an emission limit is presumed to be LAER for that source class and category. If an applicant proposes to meet this presumptive LAER, no site-specific control technology determination will be necessary. When an applicant believes the presumptive LAER limit is not achievable, a site-specific determination is required. This determination should include consideration of raw material changes, process changes, and add-on control equipment. The cost of these changes is not considered. Raw material and process changes should be evaluated through technology transfer (i.e., the likelihood that such a change will transfer from one industry to another), based on the manufacture of similar products or use of similar raw materials or fuels. Add-on controls should be evaluated based on the physical and chemical characteristics of the pollutant-bearing exhaust stream.
4. PSD Top-down BACT applies to a major source and/or a major modification at a source of any regulated New Source Review pollutant located in an attainment area. The Clean Air Act defines BACT as “an emission limitation based on the maximum degree of reduction for each pollutant.” BACT should be applied on a flexible grouping of equipment – subdivisions of emission units and/or groupings of emission units – if it is logical to do so. Logical means that the principles on which the groupings (or subdivisions) are made are consistent with federal guidance and sound engineering practices. Refer to Chapter 7 of the [AQD's PSD Workbook](#) for additional detailed information.

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